MARINE RECREATIONAL INFORMATION PROGRAM

FY   Project Plan

Redesign California Recreational Fisheries Survey (CRFS) sampling and estimation procedures for surveys at man-made structures and secondary private and rental boat sites

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1. Overview

1.1. Background

MRIP and Pacific RecFIN sponsored a review by statistical consultants of the California Recreational Fisheries Survey (CRFS) sampling designs and estimation procedures (NOAA Fisheries, 2011). The review identified potential improvements and some specific concerns regarding the sampling and estimation designs for the surveys at man-made structures (MM) and at secondary private and rental boat sites (PR2) (Breidt et al, 2011). This proposal requests statistical consultant support to assist California Department of Fish and Game (CDFG) with the redesign of the MM and PR2 surveys and estimation procedures. The goals of the redesign are to address the concerns identified in the review, to improve the reliability, accuracy and precision of the catch and effort estimates, and to improve the efficiency of the field surveys.

The current CRFS angler intercept surveys MM and PR2 sites collect data that is used to estimate fishing effort during daylight hours and catch rates (CDFG, 2011). The sampling design aggregates MM and PR2 sites into clusters based on geography. Every month each cluster defines an MM survey and a PR2 survey. For logistic efficiency, the two surveys are consolidated into a single field survey, but even so - with current and anticipated sampling resources - each cluster can be sampled only minimally (one weekday and two weekend days monthly) and higher-effort clusters cannot be visited more frequently. The current approach can provide cluster-specific estimates, but at too great a sacrifice in overall district-wide precision and survey efficiency.

The consultants recommended redesigning the MM and PR2 surveys so that use of existing sampling resources would be less constrained in space and time, and could intercept more completed fishing trips, thereby increasing sampling efficiency and enabling more precise aggregate estimates for each district and statewide. Suitably redesigned, sampling would better match the spatiotemporal resolution actually needed for estimates of effort and catch, sampling protocols would be standardized and well documented, and estimation formulas would incorporate correct weights and match the multi-stage design.

1.2. Project Description

This project requests statistical consultant support to implement the MRIP consultants' recommendations for MM and PR2 surveys in California. The project will examine and evaluate various sampling approaches, including the approached used by the MRIP Pilot Study to Test Alternative Sampling Design for Intercept Survey (i.e., the pilot project in North Carolina), to determine the appropriate approach for California's MM and PR2 surveys. For each mode, the project will choose a preferred design with the goal of deploying sampling resources more effectively and improving the precision and reliability of the estimates. The project team will draft a sampling plan and develop estimation formulas which validly match the design. The following is a

brief outline of the work plan:

1. Form a Project Team.
2. Project Team develops a scope of work.
3. Identify promising design (including stratification) options for MM and PR2 sampling.
4. Identify analyses needed, and acquire past data needed for analyses.
5. Conduct analyses to explore and compare design options.
6. Choose each mode's preferred sampling design.
7. Specify sampling protocols.
8. Derive and specify estimation formulas.
9. Draft project report.

1.3. Objectives

1. Redesign CRFS MM and PR2 sampling methodology to permit greater efficiency and more reliable and precise (district-level) estimates of effort and catch.
2. For each mode, specify standard sampling protocols including instructions for sample selection, and instructions for samplers.
3. For effort and catch and their variances, specify valid estimation formulas which match the new sampling designs.

1.4. References

Breidt, J., Lesser, V., Opsomer, J. 2011. Review of California Recreational Fisheries Survey. 14p.   CDFG (California Department of Fish and Game). 2011. California Recreational Fisheries Survey Methods. 38p. NOAA Fisheries. 2011. Marine Recreational Information Program Implementation Plan, Revision 3: 2011-2012 Update. 30p.

2. Methodology

2.1. Methodology

This will be submitted by the Project Team when it completes the scope of work.

2.2. Regions

2.3. Geographic Coverage

California

2.4. Temporal Coverage

2.5. Frequency

NA - data already collected

2.6. Unit of Analysis

2.7. Collection Mode

NA - data already collected

3. Communications Plan

3.1. Internal

1. COMMUNICATIONS AND PROJECT TRACKING:
(a) Team Co-leaders (Joe Weinstein and Phil Law) will have weekly calls or e-mail exchanges to track progress of the project.
(b) Project Team will have, at a minimum, monthly calls or webinars to discuss progress and issues. Additional calls or webinars will be scheduled as needed.
(c) Two to three in person meeting and field trips are anticipated with the Team Co-leaders, consultants and various team members.

2. SHARING AND DISTRIBUTING INFORMATION AND PRODUCTS: The primary means of distribution will be through e-mail. Files at that are too large for e-mail or documents that will be edited will be placed on the MRIP collaboration tool or on the CDFG/CRFS ftp site.

3.2. External

1. MRIP OPERATION TEAM:
(a) A monthly report will be submitted using the MRIP reporting system.
(b) The final report will be submitted using the MRIP reporting system.
2. PACIFIC RECFIN: A final report will be submitted to Pacific RecFIN.
3. CDFG MANAGERS AND PROJECTS:
(a) A draft report will be distributed for review.
(b) The final report will be distributed.

4. Assumptions and Constraints

4.1. New Data

No

4.2. Track Costs

4.3. Funding Vehicle

MRIP support contract (task order).

4.4. Data Resources

It is assumed that existing CRFS and MRFSS data will be adequate to conduct the necessary analysis. The project plans to use existing CRFS data (2004-2011) to assist in the exploration of design options. These data are housed on the Pacific RecFIN server and will be accessible to all team members through the Pacific RecFIN website. If needed, MRFSS site pressure data should also be available from Pacific RecFIN.

4.5. Other Resources

It is assumed that the project will be able to recruit suitable project team members from other agencies, Pacific RecFIN members, and MRIP consultants. California Department of Fish and Game plans to dedicate the time of two statisticians to this project. In addition other CDFG staff will assist with the project.

4.6. Regulations

No regulation should constrain this project.

4.7. Other

The State of California strictly limits out-of-state travel even when travel costs are borne by a federal agency. Therefore, any meetings amongst project team staff would likely need to be held in California. Most project team work can be accomplished via conference call, webinar, e-mail and electronic file transfer.

5. Risk

5.1. Project Risk

Table 1: Project Risk

Risk Description	Risk Impact	Risk Probability	Risk Mitigation Approach

6. Final Deliverables

6.1. Additional Reports

Final sampling design, protocols and estimation algorithms for each mode (MM and PR2)

6.2. New Data Sets

6.3. New Systems

7. Project Leadership

7.1. Project Leader and Members

Table 2: Project Members

Project Role	Name	Organization	Title

8. Project Estimates

8.1. Project Schedule

Table 3: Project Schedule - Major Tasks and Milestones

#	Schedule Description	Planned Start	Planned Finish	Prerequisites	Milestones

8.2. Cost Estimates

Table 4: Cost Estimates

Project Need	Cost Description	Date Needed	Estimated Cost
TOTAL			$0.00